

Vol. III

No. 10

# BULLETIN

OF THE

## Chicago Academy of Sciences

---

Annual Reports for the Year 1912

Winter and Spring Announcements



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CHICAGO  
Published by the Academy  
April 1913

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## THE CHICAGO ACADEMY OF SCIENCES

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### OFFICERS

Dr. Thomas C. Chamberlin.....	President
Dr. George S. Isham.....	First Vice-President
Dr. Henry C. Cowles.....	Second Vice-President
Dr. Wallace W. Atwood.....	Secretary
Mr. Henry S. Henschen.....	Treasurer

### BOARD OF TRUSTEES

#### *Members Whose Successors Are Elected by the Board of Trustees*

Mr. Louis E. Laflin.....	Term expires January, 1914
Dr. Henry J. Furber.....	Term expires January, 1915
Mr. La Verne W. Noyes.....	Term expires January, 1916
Mr. Charles Dickinson.....	Term expires January, 1917
Mr. Ira J. Geer.....	Term expires January, 1918
Mr. Charles F. Gunther.....	Term expires January, 1919
Mr. Charles A. Heath.....	Term expires January, 1920

#### *Members Elected by the Academy*

Mr. Carroll H. Sudler.....	Term expires....., 1914
Dr. Frances Dickinson.....	Term expires....., 1915
Mr. Eugene H. Garnett.....	Term expires....., 1916
Mr. Charles S. Raddin.....	Term expires....., 1917
Mr. Henry S. Henschen.....	Term expires....., 1918
Mr. Frederick L. Wilk.....	Term expires....., 1920

#### *Ex-officio*

Dr. Thomas C. Chamberlin.....	President of the Academy
Mr. Francis T. Simmons..	President Board of Commissioners, Lincoln Park



## BOARD OF SCIENTIFIC GOVERNORS

Dr. Adolph Gehrmann.....	Term expires January, 1914
Dr. J. Holinger.....	Term expires January, 1914
Mr. A. L. Stevenson.....	Term expires January, 1915
Dr. Stuart Weller.....	Term expires January, 1915
Dr. N. S. Davis.....	Term expires January, 1916
Mr. Albert Dickinson.....	Term expires January, 1916

*Ex-officio*

Dr. Thomas C. Chamberlin.....	President of the Academy
Dr. George S. Isham.....	First Vice-President
Dr. Henry C. Cowles.....	Second Vice-President
Mr. La Verne W. Noyes.....	President, Board of Trustees
Mrs. Ella Flagg Young.....	Superintendent of the Chicago Public Schools

## STAFF OF THE MUSEUM

Wallace W. Atwood.....	Secretary and Acting Director
F. M. Webster.....	Assistant Secretary
Miss Mary Alma Hardman.....	Librarian
F. C. Baker.....	General Curator
F. M. Woodruff.....	Curator in charge of Ornithology
H. S. Pepoon.....	Special Lecturer
R. C. Raddatz.....	Special Preparator and Taxidermist
H. W. Lang.....	Printer and Museum Aide
Miss Elizabeth Tuttle.....	Museum Aide
Miss Joanna Buresch.....	Museum Aide
Page Emmett.....	Museum Aide
Roderick Peattie.....	Special Assistant and Investigator
Mrs. Eva Rowley.....	Artist
C. A. Corwin.....	Special Artist

## HONORARY CURATORS

Dr. Thomas C. Chamberlin.....	General Geology
Dr. Stuart Weller.....	Paleontology
Dr. Oliver C. Farrington.....	Mineralogy
Professor E. J. Hill.....	Botany

## THE PRESIDENT'S MESSAGE

Chicago, Illinois, Jan. 13, 1913.

TO THE MEMBERS OF THE CHICAGO ACADEMY OF SCIENCES:

I very much regret that my physician's instructions prevent me from joining you in the annual meeting tonight. I am sure it would be an unusual pleasure to listen to the reports which the active officers of the Academy will make to you relative to the progress of the year. That these will be the most gratifying in the recent history of the Academy, if not in its whole history, I need not predict. They will show specific advances whose importance cannot at once be fully appreciated. I felicitate the Academy on this early fruitage of the recent reorganization, and join with you in the sincere hope and belief that it is but the first fruits of a larger harvest, and the beginning of a long era of prosperity.

Yours with sincere regret,

T. C. CHAMBERLIN

## TREASURER'S ANNUAL REPORT FOR 1912

CASH ON HAND, January 1st, 1911.....	\$3,735.40
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## RECEIPTS

Lincoln Park Commissioners (10 mos.) .....	\$4,166.70
Austin Property, Rental Account .....	3,537.24
Interest .....	3,117.76
Membership Dues .....	344.00
Sale of Publications.....	015.08
La Verne W. Noyes, for work of Academy...	4,500.00
Albert Dickinson, Special Subscriptions Children's Science Library .....	500.00
Charles Dickinson, Special Subscriptions Children's Science Library .....	250.00
Louis E. Laffin, Special Fund.....	050.00
	<u>\$16,480.78</u>
	\$20,216.18

## DISBURSEMENTS

Salaries.....	\$9,456.02
General Expenses .....	875.14
Photographic Supplies.....	287.61
Printing and Stationery .....	224.40
Educational Expense.....	451.93
Insurance .....	81.75
Taxidermic Supplies .....	115.35
Field Expense .....	226.09
Museum.....	4,651.96
Library.....	1,027.37
Furniture and Fixtures .....	1,836.11
Artificial Foliage .....	249.80
	<u>\$19,483.53</u>
CASH ON HAND, December 31st, 1912.....	732.65
	<u>\$20,216.18</u>

## REPORT OF THE LIBRARIAN

## TO THE MEMBERS OF THE ACADEMY:

In the Librarian's report for the year 1911 occurred the following statement:

"It is hoped that the Children's Library which has been planned may materialize. For this new library we have planned to fit up the present office with bookcases, tables, chairs, magazine racks, and other furnishings, separating a small portion by means of a railing for the Secretary's and stenographers desks. The room as planned will hold 14,000 volumes and accommodate fourteen children at a time. This room can be opened for reading in the afternoons and Saturdays, and it has been suggested that the books might be loaned to the children of members of the Academy."

It is gratifying to be able to look over the past year and feel that we have built better than we planned. The entire old office room has been redecorated and furnished with bookcases, tables, chairs, magazine rack, bulletin board, and other pieces suitable for a children's reading room, and this entire room has proven too small to accommodate the number of readers who have learned to use it.

A list of 465 books, which had been carefully made and criticised by people of authority in their subjects formed the basis of our first purchase. These books treat of botany, agriculture, zoology, geography, geology, astronomy, handicraft, and other nature study subjects, with some books of essays and poems on nature. The best nature study magazines, such as National Geographic Magazine, Modern Electrics, Popular Mechanics, Scientific American, and Bird Lore, form our subscription list. The stereoscopic views which were unsuccessful as loan collections have found their place in the library where they are in constant use. The bulletin board affords a place where special notices may be posted and where a picture study of birds, plants, etc., may be exhibited. At present we have a series of winter bird pictures posted with the label "How many of these birds can you find in the Park?"

It is the plan of the Librarian to keep the common wild flowers in the room during the seasons in which they grow, and in the

winter months branches, grasses, and seed pods form the decoration.

The reading room was opened on August 5th with an attendance of eleven children readers. The total attendance since the opening has been 3907. Most of the children can come only during after school hours and on vacation days. During the Christmas Holidays there were 564 children who used the room, an average of sixty-six per day. These figures do not include those who merely visited the library without reading. To be sure these sixty-six children did not stay all day, but when one considers that the room is arranged to accommodate fourteen at a time he may get some idea of the crowded condition.



Children's Science Library and Free Reading Room.

It was found necessary to move an extra table in and use the high chairs, and when these were full we used the floor and finally sent the overflow to the lecture room with their books.

The nature of the children's work may be classed into Reference Work and Reading for Entertainment. Many of them do

serious reference work, much of which is stimulated by the special loan exhibits which are traveling among the schools. They come to look up everything they can find about the specimens in the cases. One teacher gives credit for the reference work her children do, and they come during school hours and make notes on their reading, giving reports in class on what they learn. These children have learned to use the museum and they may be seen going back and forth from the museum cases to the books, thus connecting the two in a way which is truly valuable. The library also furnishes the means of intelligently studying the park and vacant lots. The children are continually bringing in specimens to identify, and with a very little help they are able to work out their problems themselves. One boy worked for half a Saturday identifying a leaf from his yard at home. On another occasion two boys brought in a butterfly, thinking it might be used in the Academy. It had not occurred to them to study anything about it after they had caught it. They were soon interested in finding in the books what it was and how it lived, and they read all they could find about it. They went out and it was thought they had gone home, but soon they came running back, announcing that they had found that very same butterfly in the gallery of the museum in the second case to the left of the stairs. Needless to say the Academy did not get that butterfly. They took it home to start a museum of their own.

A course was given this fall on "How to use the Library in identifying Natural History Specimens." This course had to be limited to the seating capacity of the room, but five times as many applied as could be accommodated. These children worked with specimens of flowers, birds and insects, and learned that they could study them by themselves. They took excursions out into the park and up through the museum, and saw how the books and the museum and the out-of-doors are related. That this course was appreciated by the children is shown by the fact that the attendance was voluntary and that only one child dropped out during the six lessons. When one considers that each child reported to fifty other children of his room what he had seen and done he can judge of the influence of the work.

Then there is a class of children who come for entertainment. These children usually choose a story or a set of pictures, but the story books have been classed along with the reference books

and as the child looks for the story he is led into examining the other books also.

Visitors in the park bring the children in to see the library and find difficulty in getting them to leave. Children stand at the door looking in longingly, and when invited to come in they say "Don't we have to pay anything?" When told it is theirs to use and enjoy they are delighted. We are continually hearing older people say: "My! If we could have only had such opportunities when we were children!"

A few books have been taken from the library, but on the whole the children have proven very trustworthy, and I believe that it is better to risk a book's being taken now and then than it is to be too suspicious. The children's library is used far more by adults than the general library, although no provision has been made for their accommodation. The Academy force are continually coming in for reference books and the librarian has to make weekly trips over the building to gather up the books which the museum force have borrowed.

The Children's Library has been proven a success, and it is hoped some much needed improvements may be made this year. We need additional funds for the purchasing of new books and pictures which are constantly being asked for by the children. We are getting an excellent indirect lighting system, but we need other improvements, such as lavatories and toilet rooms in the building. Dirty hands and faces are, to say the least, not conducive to the best atmosphere in a reading room. The room is too small for the accommodation of the children who come and the noise from the hall and the street is distracting when the doors and windows, our only means of ventilation, have to be open. Not all of these improvements may be easy to arrange in the present building but we hope the coming year may bring many benefits to the Children's Library.

Respectfully submitted,

MARY ALMA HARDMAN,  
*Librarian.*

## REPORT OF THE SECRETARY

*Educational Work*

The various educational activities undertaken by the Academy have been continued during the past year with the same if not greater success than they have had during the earlier and more experimental stages. Dr. H. S. Pepoon, Miss Hardman, Dr. Shelford, Dr. Tower, and Dr. Atwood, the Secretary of the Academy, have offered courses of instruction in the natural sciences to teachers and children at the Academy Building. The work offered by Dr. Pepoon and Miss Hardman has been entirely under the auspices of the Academy and free of charge to the teachers of the Chicago schools and to delegates from various rooms in the public schools. Each class offered has had a registration far beyond that specified as the limit, but in each case the instructor has agreed to enlarge the class rather than turn those away who sought instruction. Eleven such courses have been offered with a total enrollment of 706, with an average of about six lessons in each course, making the full number of lessons given sixty-nine and the total attendance of teachers and children in such courses 3777.

Several courses have been offered under the auspices of the University of Chicago, giving an opportunity for the teachers of the North Side to take college courses which are recognized by the University toward graduation and by the public school system toward the required promotional units.

Members of the staff have also been called upon to give special courses of instruction at neighboring institutions, and this work has been done so far as practicable without interference with the work of the Academy. Following is a statistical statement regarding this educational work.



TABLE A  
1912

Course	Subject	Teacher	No. Enrolled	No. Lessons	Total number present at all courses
IX	Selection, Preservation and Proper Display of Nature-Study Materials	Dr. Pepoon	31	6	143
XI	How to know the Common Minerals and Rocks <sup>1</sup>	Miss Hardman	44	11	208
VI	Physical Geography	Miss Hardman	40	6	221
X	Farm Products	Miss Hardman	75	6	394
XV	Plant Phenomena of Spring	Dr. Pepoon	150	6	810
VII	Field Study for Teachers	Dr. Pepoon	25	4	100
XIV	Determination of Flowers by Analytical Keys	Dr. Pepoon	55	6	222
IX	Preparation and Preservation of Plant Materials for School Study	Dr. Pepoon	125	6	750
X	Farm Products	Miss Hardman	125	6	750
XVI	How to Identify Natural History Specimens with the use of the Library and Museum <sup>2</sup>	Miss Hardman	16	6	89
XVII	Field and Laboratory Course for Teachers	Dr. Pepoon	20	6	90
Chicago Kindergarten Institute Nature Study Course	Identification of Common Minerals and Rocks	Miss Hardman	38	5	188
Teacher's College Credit Course	Identification of Common Minerals and Rocks	Dr. Atwood	26	12	312
Teachers' College Credit Course	Animal Behavior	Dr. Shelford	9	12	108

<sup>1</sup> Waiting List 29<sup>2</sup> Waiting List 60

TABLE B

## SCHOOLS REPRESENTED BY DELEGATES IN YOUNG PEOPLE'S WORK

SCHOOL	No. of Delegates
Adams.....	1
Agassiz .....	10
Alcott .....	35
Arnold .....	21
Audubon.....	8
Avondale .....	3
Bancroft .....	3
Belding.....	3
Bell .....	1
Bismark .....	2
Brentano.....	9
Burley .....	9
Cameron.....	5
Carpenter.....	3
Chase .....	1
Cleveland .....	11
Coonley .....	9
Drummond .....	2
Edgewater .....	3
Field .....	1
Franklin .....	22
Goethe .....	3
Goudy.....	3
Greeley.....	7
Hamilton .....	15
Hawthorne .....	11
Haugan .....	8
Hayt .....	4
Headley .....	5
Holy Trinity .....	7
Irving Park.....	3
Jahn .....	7
Jemmer.....	1
Kinzie.....	8
Knickerbocker.....	1

SCHOOL	No. of Delegates
Langland .....	8
La Salle .....	8
Lincoln.....	21
Logan .....	2
Lowell .....	2
Manierre.....	13
Mayfair.....	3
McPherson.....	4
Monroe .....	2
Morris.....	11
Nettlehorst .....	12
Nobel .....	5
Ogden .....	8
Parker.....	1
Prescott.....	8
Ravenswood.....	30
Ray .....	1
Schiller .....	1
St. Clemens .....	1
Schneider .....	11
Sheldon.....	3
Stewart .....	16
Thorp.....	21
Trumbull .....	25
Von Humboldt .....	1
Waters .....	3
Wicker Park .....	2
Total.....	468

#### *Loan Collections*

The loan collections, which were first offered to the schools three years ago, have been in constant use during the past year, and the inconvenience of sending pupils from the schools to the Academy for these collections and returning them to the Academy has not prevented those who appreciate their educational value from using them extensively. It is highly desirable that this work be undertaken on a larger scale in Chicago and that arrangements be made for free distribution of this material to the teachers at their schools.

During the past year 619 loans have been made, and it is fair to assume that these collections have been used before not less than 50,000 children.

### *The Loan Exhibits*

Two museum loan exhibits have been prepared by the Academy and sent free of charge to the various schools on the North and Northwest sides. These loan exhibits, set up as small habitat groups, one entitled "Birds wintering in Chicago" and the other "Small mammals living near Chicago," have attracted unusual interest and comment, and it is regretted by teachers and principals that we have thought it necessary to limit the time to three days for these exhibits to remain at any one school. This limit has been established, for the present, because of the numerous requests which have come to the Academy for these exhibits. We have learned from principals and teachers that these exhibits have frequently been used for a series of lessons by the various teachers of the school while the exhibit is with them. Exhibit No. 1, "Birds wintering in Chicago," has now been sent to forty-three schools, and it is fair to estimate that that exhibit has been seen and somewhat studied by at least 51,600 children. Loan Exhibit No. 2, "Small mammals living near Chicago" has been sent to twenty-five schools and has been enjoyed and appreciated by at least 30,000 children.

There is no doubt that this phase of Museum Extension work is deeply appreciated by principals, teachers, and children. Mr. Woodruff is now engaged in the preparation of another such exhibit, which it is anticipated will be ready for loan during the spring months. It will be a group of the Warblers, which migrate through Lincoln Park on their journey northward during April and May.

### *Public Lectures*

There were seventeen public lectures given during the past year and the attendance at these lectures has usually exceeded the seating capacity of the Academy lecture-room. In addition to the lectures and meetings of the Academy, the lecture-room has been used by the Northwestern Branch of the Illinois Medical Society, by a branch of the Nature Study Club, by the Illinois Audubon Society and a large general meeting and exhibit was held with the State Microscopic Society. At this last meeting the attendance was between three and four hundred.

*Membership*

The membership of the Academy stands at present as follows:

Active.....	122
Associate.....	27
Life.....	26
Fellows.....	21
Patrons.....	3

*Library*

During the past few months the officers of the Academy and the two governing boards have been seriously considering the problem of the General Library of the Academy. It has become evident that our library has far outgrown the capacity of the space allotted to it, and it has been necessary to store thousands of volumes in the attic. It has been evident for several years that it has been impossible for the Academy with the funds available and the staff engaged, to properly catalogue, classify and bind the rapidly accumulating periodicals and volumes sent to the library through exchange. It has furthermore seemed that it was inappropriate for the Academy, now that the John Crerar Library has been established in Chicago and has defined its policy as a scientific library, to attempt the development of another general science library, which would naturally duplicate a portion of the material of the John Crerar Library and unless large funds were available for additional space and the development of a force of library assistants. The Board of Scientific Governors and the Board of Trustees have come to the conclusion that it would be wise on the part of the Academy to arrange for the disposition of the general library and for the disposition of such material as may come through exchange with other societies, providing that all books now in the present library which are used as a working library for the curators in the museum be retained at the Academy building. Preliminary negotiations have been made with the representative of the John Crerar Library, and it appears now that the John Crerar Library will purchase, at one-half list price, the books in the Academy Library, and all such library material as we wish to dispose of, and that they will furthermore agree to receive, bind, classify, and catalogue all exchange material, acknowledging it in the name of

the Academy but at their own expense, and to allow the Academy one-half of the list price on all such exchange material.

In this way the Academy would receive each year a sum which might be appropriately considered as a publication fund to be used in continuing and enlarging such exchange relations and to pay for such publications as we wish to issue from time to time.

It is furthermore the understanding with the John Crerar Library that in recognition of the co-operation of the Chicago Academy of Sciences in the development of their library a room should be selected as the Chicago Academy of Sciences Room in the new building of the John Crerar Library, and that a suitable tablet be placed in or at the entrance of that room in acknowledgment of the co-operation of the Academy in the growth of the John Crerar Library and certain choice books in the Academy Library will, it is expected, be placed in cases about this room. The room will serve as a study and reading room reserved especially for the members of the Academy.

An additional specification is made that whenever any special loan of science books is needed at the Academy in connection with work in progress there, such a loan library may be selected from among the books of the entire John Crerar Library and will be loaned to the Chicago Academy of Sciences for a period of at least two weeks, and under most circumstances it will be possible to make arrangements for a longer loan if that is necessary. If this general plan for the disposition of the library is to be carried out the Board of Trustees, according to the constitution, must receive authority from the membership of the Academy, and such action would be appropriate at this meeting.

#### *Academy Staff*

The Academy staff now includes:

Wallace W. Atwood.....	Secretary and Acting Director
F. M. Webster.....	Assistant Secretary
Miss Mary Alma Hardman.....	Librarian
F. C. Baker.....	General Curator
F. M. Woodruff.....	Curator in charge of Ornithology
R. C. Raddatz.....	Special Preparator and Taxidermist
H. W. Lang.....	Printer and Museum Aide

Miss Elizabeth Tuttle.....	Museum Aide
Page Emmett.....	Museum Aide
Miss Johanna Buresch.....	Museum Aide
Roderick Peattie.....	Special Assistant and Investigator
Dr. H. S. Pepoon.....	Special Lecturer
Mrs. Eva Rowley.....	Artist
C. A. Corwin.....	Special Artist

The staff as now organized is in position to carry out and complete all modern museum exhibits and the progress in that work will be given in the report of the Acting Director.

### *Lincoln Park Handbook*

Plans have been made and approved by the Board of Scientific Governors and the Board of Trustees, as well as by the Lincoln Park Commissioners, for the preparation of a Lincoln Park Handbook, or series of handbooks, setting forth the educational and scientific advantages in the park. This work will include more than a mere guide to the park, for the educational value in the trees, flowers, animals and monuments will be set forth with suitable descriptions. The native and migratory birds will be described and enumerated with information as to where they may be found, and at what seasons of the year.

The book will be published by the Academy, but by arrangement with the Lincoln Park Board, it will be put on sale for a nominal sum at the various booths in the park under the charge of the concessionaire.

### *Gifts*

During the past year the Academy has received the following special gifts.

Messrs. Albert and Charles Dickinson for the furnishing and equipping of a Children's Science Library \$500.00 and \$250.00, respectively.

Mr. Louis E. Laffin for general expense of the Academy the sum of \$500.00 to be paid in semi-annual installments of \$50.00 each.

Mr. LaVerne W. Noyes has sent to the Treasurer of the Academy during the past year for general expenses \$4,500.00 and has constructed, installed and presented to the Academy a celestial sphere at a cost of not less than \$5,000.00.

The interest in the Academy on the part of the officers and members has been exceedingly gratifying to those actively engaged in the work, and the appreciation of the general public which has come to the attention of the Secretary in many ways is most encouraging. The Academy is certainly receiving gratifying recognition, and yet it has been the acknowledged policy of the Academy not to make public the work in progress. Greater publicity to the new plans of the Academy will probably be given within the coming few months.

It is more evident each year to those actively associated with the work of the Academy that the institution has a unique and somewhat remarkable opportunity, that it may become a most valuable institution on the north side, of unusual attractiveness, and educational effectiveness. Thousands of children who never visit the Academy building are each year reached through the museum extension work, their lives have been somewhat brightened and their minds broadened and better trained through the work done and material furnished to the schools. This work will surely in time receive the full and adequate support of the public spirited citizens of the city.

(Signed) WALLACE W. ATWOOD,  
*Secretary.*



## REPORT OF THE ACTING DIRECTOR

The past year has been one of unusual activity in museum work. The staff has been increased from four to fourteen members and every effort has been made to carry out the general policy which has been adopted by the Academy and by the Board of Scientific Governors to make this museum a museum to illustrate and display the natural history of the Chicago Region. As this work has progressed the confidence of the Board and officers in the policy has been strengthened. The material, simple as it is and right at our doors, proves to be most attractive for installation in the museum and the interest which has already been aroused is sufficient encouragement to assure us of the general and strong appreciation of the public and of the members of the Academy. The museum will, if this policy is carried out, have a unique position among museums of America. It will have defined its field in a most appropriate way for the Chicago Academy of Sciences, and will have so limited it that it may be able to do full justice to the work.

Mr. Baker has given his time especially to the arrangement and display of the insects of the Chicago Region. In connection with the exhibit, pains have been taken to show the variety of insect life, with special groups of those which are injurious, of those which are associated with houses and homes, and a number of special groups have been arranged, showing the habitats and the life of the insects at different times of the year. The material for these special habitat groups has been prepared by the members of the Academy staff.

The photographic backgrounds now used prove to be more satisfactory than the paintings, for smaller cases, in that they are absolutely accurate reproductions of the region in miniature. In them there is a richness of detail which no artist can give in a reasonable amount of time. The perspective which these photographs give is also remarkably satisfactory.

The artificial foliage is now being prepared by members of the staff and the models of small animals are made here at the Academy building, and through this co-operation the insect exhibits have been most actively pushed forward during the past year. When completed the insect exhibit will occupy the entire balcony rail.



Detail section of "Swarming of the Monarch" group

The work in ornithology under the directing of Mr. Frank M. Woodruff has involved the rearrangement of all the birds of the Chicago region in the identification cases of the main floor of the museum. He has also had a number of birds added to the systematic collection and is now in the midst of the preparation of a third loan exhibit to be used in connection with the school work. The largest piece of work undertaken by Mr. Woodruff during the past year has been the collection and study of a group of Black-crowned Night Heron, a colony of which was found by him southwest of the city. This study involved several short periods of field work at the rookery and the gathering of appropriate material, specimens, nests, etc., to reproduce the tree tops in an oak grove, where these birds nest. The material is all ready for installation, the background has been prepared and the exhibit will soon be set up in the large case in the main corridor.

Mr. Raddatz, who has been specially engaged in the preparation of artificial foliage, has taken the special assignment of securing and preparing material for a fish group to be installed in the large case in the main corridor. This has involved somewhat extensive field studies and work along the Illinois River. He has carried out his plan of mounting the fish in the field to retain the perfect lifelike form, and he has colored most of the mounted specimens with the live specimens at hand. This exhibit will be completed as promptly as possible.

The members of the staff have co-operated in the gathering of material for a special group to illustrate the life and habitat of the muskrat which is still found in southern portions of the city. The muskrats have been collected, the necessary photographic studies made, and the background has been installed in the case. The artificial foliage is now being made.

The large deer group which has been in the Academy for some years has been reinstalled in a new case provided for it. That exhibit has been open to the public for several months.

During the year more than two hundred large transparencies illustrating the Chicago Flora have been made and colored. This work has involved careful photographic studies in the field and in the workroom by Mr. Woodruff and Mrs. Rowley, and very careful work in coloring, which Mrs. Rowley has been doing. This exhibit of the flora of the Chicago Region, which has been in part



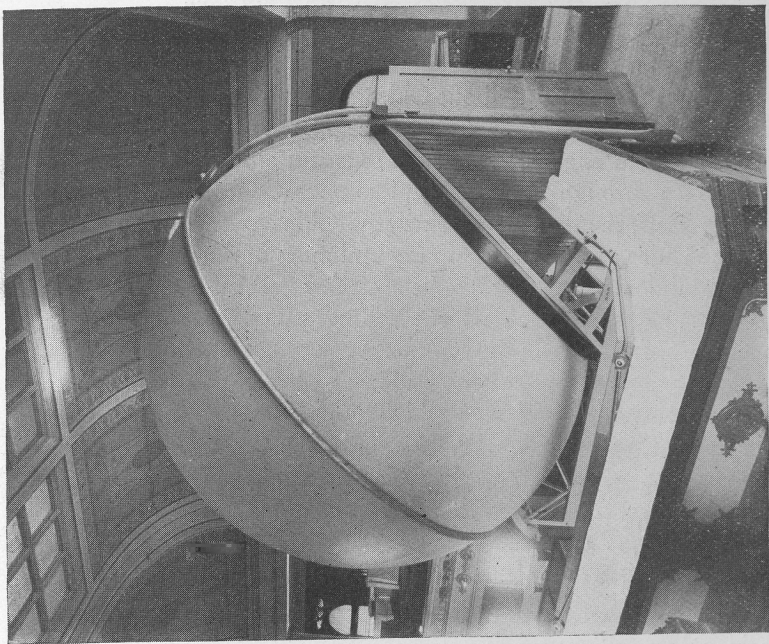
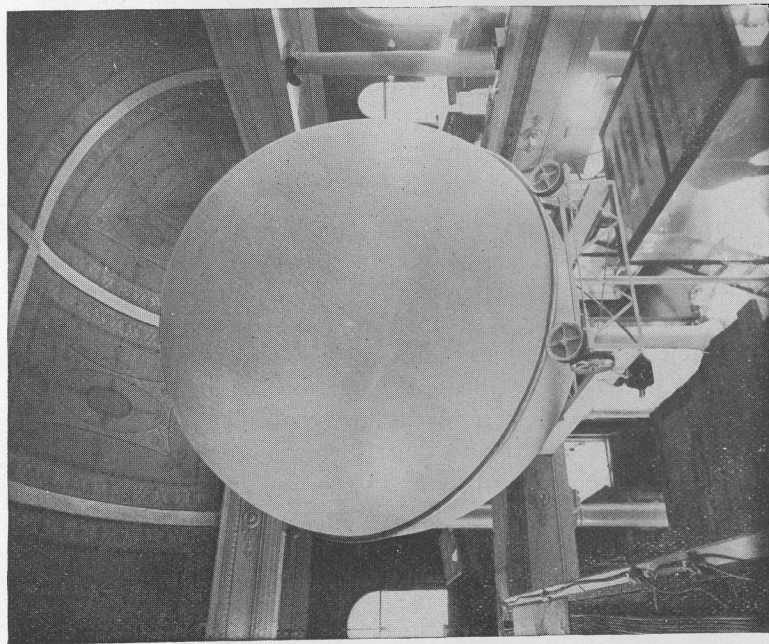
One of the Transparency Cases  
illustrating the Chicago Flora

on exhibition, has received most favorable comment, and when complete will undoubtedly be fully appreciated by all visitors to the museum. It is a unique plan for exhibiting the flora in a museum and for arousing an interest in botanical studies in and about Chicago. This exhibit will help those who desire to identify the trees, flowers and other plants which they have seen.

The largest single piece of museum work undertaken during the past year has been the construction and installation of the first Atwood Celestial Sphere. This sphere is an apparatus invented by the Acting Director of the Museum to arouse an interest in descriptive astronomy. It has been constructed, installed and presented to the Academy by Mr. LaVerne W. Noyes, President of the Board of Trustees, and represents one of the largest single gifts received by the Academy since the Laflin bequest. In the construction of the sphere many difficult engineering problems have been met and the exhibit as now installed demonstrates a rather remarkable solution of these problems. This exhibit cannot but arouse an added interest in the study of astronomy. The Academy has in this way taken a new position among the museums of the world, for it has seemed impossible for such scientific institutions to make exhibits which had practical value in arousing or promoting an interest in this science. The Academy is to be especially congratulated in having the first of these spheres installed in its museum.

All stars of the first, second, third and fourth magnitude, and a few of the fifth magnitude, necessary to complete important constellations, will be shown in the sphere. The full number of fixed stars thus shown will be 692. When completed a representation of the sun, the moon, and four planets, Jupiter, Venus, Mars, and Saturn, readily visible to the unaided eye will be included in the exhibit. The Board has authorized the preparation and publication of a special pamphlet descriptive of this exhibit and of value to those wishing to use it for educational purposes or private study. It is expected that a special attendant must be employed and trained to take visitors into the sphere and during the demonstration give a brief lecture on the stars and other heavenly bodies which are there illustrated. A formal opening of this sphere has been planned and due notice will be sent to all members of the Academy. It is hoped that they and their guests will be present at that time.





# AN ATWOOD CELESTIAL SPHERE

Invented by Wallace W. Atwood, Secretary of the Society and Director of the Museum.  
Constructed, installed and presented to the Academy by LaVerne W. Noyes, President of the Board of Trustees.

For several years the Academy has been interested in the data now available in and about Chicago as to the depth of the bed rock beneath the city. During the past year Mr. Roderick Peattie has been engaged as special museum aide, and has collected such data through the very kind co-operation of the City Engineering Staff, the Sanitary Board, the Chicago Telephone Company, the Chicago Tunnel Company and most of the large contractors and builders of the city. With but few exceptions all persons having such data available have willingly co-operated with the Academy. Mr. Peattie has prepared a contour map with a ten-foot contour interval of the underlying bed rock surface and a relief map showing, as far as can be determined from available data, the surface of the underlying rock.

The data at hand would indicate that throughout the area the rock underlying the glacial drift of the Chicago region is Niagara Limestone of Silurian Age. It would seem that the city is immediately above a pre-glacial drainage divide; that before the ice invaded the region streams flowed to the northwest and southeast in a line which would cross the city through the loop district. The data collected in this study will all be arranged, and edited, with the appropriate notes, and published in pamphlet form. The importance of this work has been appreciated by those engaged in the construction of heavy buildings in the city and may prove of great value in the study or solution of plans for a subway system. It seems quite appropriate that the Academy continue to gather and file all data available on this subject.

Plans for the coming year will be made consistent with the general policy of the Chicago Natural History Museum. The insect exhibit will be completed, the bird exhibit increased and four large corner cases are planned for the main museum. The floral exhibit will be increased and a new series of transparencies prepared to illustrate the physical geography of the region, which will serve to arouse interest in the many places of beauty and scientific importance within a short distance of the city. This exhibit should also prove of value to those giving instruction in geography in the public schools. A number of transparencies are being arranged on astronomical subjects. These will be exhibited in cases similar to those used for the floral exhibit, and placed in the gallery.

Plans are being considered for a series of groups illustrating the mammals and larger birds of the Chicago region to be placed in the central portion of the dome and seen from the gallery. Mr Noyes has made all plans for the installation of another celestial sphere to be placed at the north end of the balcony and to include the constellations as seen in a southern latitude. The location chosen for the observer is Buenas Ayres, and the sphere will be so constructed as to represent the heavens as visible in that latitude, and in that way all of the brighter stars visible to the unaided eyes from any location on the earth may be studied in the Academy building. The appropriate position and course of the sun, moon and larger planets will also be included in the second sphere. These two spheres will give a somewhat remarkable opportunity for those teaching the fundamental elements of astronomy or mathematical geography to give demonstrations to their pupils and for all visitors to become acquainted with the brighter stars seen from the earth.

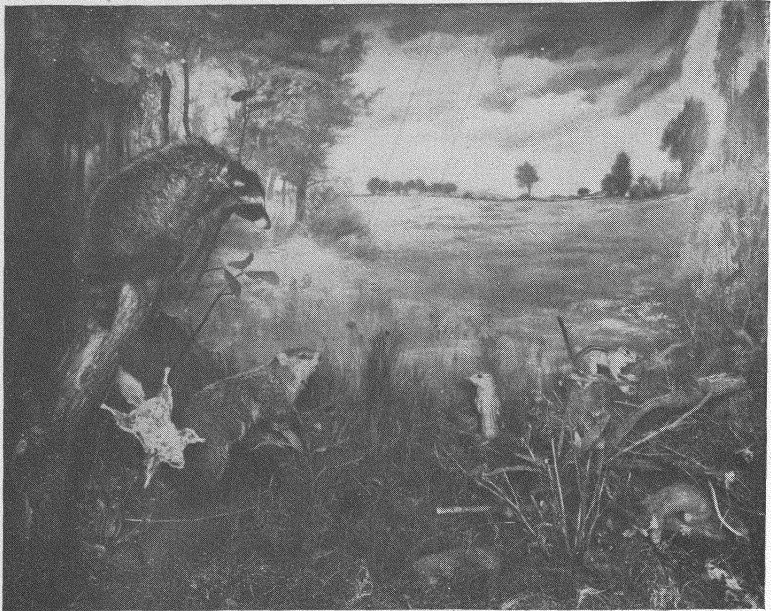
(Signed) WALLACE W. ATWOOD,  
*Acting Director of the Museum.*



## ANNOUNCEMENTS

The Loan Collections, which have been in use in the schools for three years, will again be available for the winter and spring work. In addition to this museum material, attention is called to the Lantern Slides and Picture Collections, which are loaned free of charge to the schools.

The two following special Museum Loan Exhibits have been prepared and will be delivered free of charge to schools during the coming season:



Museum Loan Exhibit No. 2.  
An habitat group of small mammals of the Chicago Region.

Exhibit No. 1 "Birds Wintering in the Chicago Region" and Exhibit No. 2 "The Small Mammals Living Near Chicago." So many requests have been received for these exhibits that their schedules are made up for the remaining time of this school year but requests may be sent in for the coming fall. These exhibits will be delivered free of all charge and they may be left at each school for at least three days.

These Museum Loan Exhibits are arranged as habitat groups including a somewhat large number of the animals which might be found in such a habitat. Through the study of these exhibits the children and teachers may associate the animals with their proper field settings, and it is hoped that this study will encourage them to make greater use of the Academy Museum and of the Zoological Gardens in Lincoln Park.

### CHILDREN'S LIBRARY

The Children's Science Library and Reading Room, recently installed at the Academy, contains over five hundred selected books of science and nature study. The Reading Room is located on the first floor of the Academy Building and is open from 9:00 A. M. to 4:30 P. M. each week day.

An invitation to use this library is extended to all children. Individual guidance in the proper use of nature study books will be given by the Librarian.

### CLASS WORK AT THE ACADEMY

The Academy cordially invites teachers to bring their classes to the Academy and offers to provide, whenever possible, and when it is desired by the teacher, some one to assist in conducting the lesson at the Museum.

We trust that all classes visiting the Museum will register at the office. Arrangements for special class meetings or for the use of the lecture-room or laboratory at the Museum should always be made by appointment. This may often be done conveniently by telephone, calling Lincoln 2410 and asking for the Academy office.

### MUSEUM LOAN COLLECTIONS

It is the policy of the Academy to promote in all ways possible the use of the Museum collections in the public schools. The officers of the Academy are desirous of improving these collections in every way possible, and of adding such new collections as will be used. We hope to prepare additional reading matter to accompany the collections and, if possible, to add photographic illustration to each collection.

Collections may be retained for one week from date of issue. Birds and other specimens of a fragile or delicate nature must not be handled by the pupils. Only one collection will be issued at one time, but this may be exchanged for another at the expiration of the allotted time. It is expected that the collections will be returned to the Academy in good condition. The following collections are now ready for use:

*Bird Series*

	No. of Specimens
No. B 1. Winter Residents.....	6
No. B 2. Residents.....	6
No. B 3. Early Spring Arrivals.....	6
No. B 4. Birds of the Great Lakes.....	3
No. B 5. Birds of the Air.....	6
No. B 6. Summer Residents.....	6
No. B 7. Birds of Swamps.....	6
No. B 8. Birds of Shores of Lakes.....	5
No. B 9. Birds of Prey.....	4
No. B10. Seed-eating Birds.....	5
No. B11. Swimming Birds.....	4
No. B12. Wading Birds.....	4
No. B13. Six Common Birds.....	6
No. B14. Grouse and Pigeon.....	3
No. B15. Six Migrant Warblers.....	6
No. B16. Six Common Woodpeckers.....	6
No. B17. Six Common Warblers.....	6
No. B18. Six Familiar Birds.....	6

*Zoological Series*

No. Z19. Three Common Fishes.....	3
No. Z20. Six Common Mammals.....	6
No. Z21. Life History of a Butterfly.....	7
No. Z22. How Insects Hide.....	7
No. Z23. Grasshoppers and Dragon-Flies.....	11
No. Z24. Ants, Bees and Wasps.....	9
No. Z25. Flies.....	9
No. Z26. Bugs.....	9
No. Z27. Beetles.....	12
No. Z28. Lace-Winged Insects.....	4

No. Z29.	Some Common Butterflies.....	8
No. Z30.	Some Common Moths.....	5
No. Z32.	The Chambered Nautilus.....	1
No. Z33.	Snails of Field and Forest.....	10
No. Z34.	The Oyster and Its Relatives.....	10
No. Z35.	Beautiful Shells of the Tropics.....	7
No. Z36.	A Day with the Pond Snails.....	10
No. Z37.	Odd and Interesting Sea Snails.....	8
No. Z38.	Star-Fishes and Sea-Urchins.....	7
No. Z39.	Corals.....	7
No. Z40.	Sea Fans and Sea Plumes.....	3

*Economic Series*

No. E32.	Petroleum Products.....	19
No. E33.	Corn Products.....	18
No. E34.	The Hemp Industry.....	62
No. E35.	The Wheat Industry.....	24
No. E36.	The Wheat Industry.....	24
No. E37.	The Wheat Industry (Charts).....	2
No. E38.	The Wheat Industry (Charts).....	2
No. E39.	The Featherbone Industry.....	14
No. E40.	The Featherbone Industry.....	14
No. E41.	The Pearl Button Industry.....	7
No. E42.	The Ivory-Button Industry.....	5
No. E43.	Some Common Ores.....	11
No. E44.	Artificial Abrasives.....	11
No. E45.	The Iron and Steel Industry.....	11
No. E46.	Aluminum Ores and Products.....	7
No. E47.	Coal.....	5
No. E48.	The Silk Industry.....	14
No. E49.	The Cotton Industry.....	11
No. E50.	The Wheat Industry.....	24
No. E51.	The Wheat Industry (Charts).....	2
No. E52.	Some Familiar Commercial Woods..	18

*Geological Series*

No. G53.	Eight Common Rocks.....	8
No. G54.	Some Common Sedimentary Rocks..	6
No. G55.	Some Common Igneous Rocks.....	6

No. G56.	Some Common Metamorphic Rocks.	7
No. G57.	Fossils of Rock of Chicago Area.....	8
No. G58.	The Weathering of Granite.....	8
No. G59.	Crystals of Common Minerals.....	16
No. G60.	The Mantle Rocks.....	6

### LANTERN SLIDES

At the urgent request of many, the Academy has undertaken to prepare several sets of lantern slides illustrating natural history and other scientific work conducted in the schools. These sets may be borrowed by a teacher or a principal upon written application. A set of lantern slides may be retained for one week. It is expected that special care will be taken of this material and that it will be returned to the Academy in good condition. The following sets are now ready:

<i>Nature Study</i>		No. of Slides
No. L 1.	Resident Birds.....	13
No. L 2.	Winter Birds.....	12
No. L 3.	Migrant Birds.....	14
No. L 4.	Summer Birds.....	36
No. L 5.	Foreign Mammals.....	19
No. L 6.	American Mammals.....	23
No. L 7.	Fresh Water Pearl Button Industry	25
No. L 8.	Pearls and Mother-of-Pearl.....	21
No. L 9.	Sponges.....	21
No. L10.	Conservation of Forests.....	12
No. L11.	Lower Animals.....	26
No. L12.	Fishes and Reptiles.....	15
No. L13.	Wave Work.....	14
No. L14.	River Work.....	22
No. L15.	Alaska.....	35
No. L16.	Yellowstone Park.....	36
No. L17.	The Coffee Industry.....	31
No. L18.	Rubber and Sisal Hemp.....	25
No. L19.	Some Common Trees.....	29
No. L20.	Mountains.....	45
No. L21.	Glaciers.....	20
No. L22.	Weathering and Wind Work.....	19

No. L23.	The Silk Industry.....	19
No. L24.	The Cotton Industry.....	29
No. L25.	The Rice Industry.....	22
No. L26.	The Wheat Industry.....	54
No. L27.	Truck Farming.....	18
No. L28.	Dairying.....	36
No. L29.	Corn Raising.....	24
No. L30.	Hay Making.....	29
No. L31.	Starved Rock.....	25

### PICTURE COLLECTIONS

Many teachers have found pictures, especially stereoscopic views, of special value to them in their work, and in response to many suggestions and requests, the Academy has purchased a number of sets of stereoscopic views which illustrate topics in nature-study and physiographic work. A set of views may be borrowed by a teacher or principal upon written application and retained for one week. The following sets of views are now ready for distribution:

#### *Physiography*

	No. of Views
No. P 1. Weathering and Stream Erosion.....	25
No. P 2. Glaciers.....	25
No. P 3. Shore Lines and Harbors.....	25
No. P 4. Mountains.....	25

#### *Nature-Study*

No. P 5. American and Foreign Mammals....	30
No. P 6. American and Foreign Birds.....	25
No. P 7. Fruits of Tropical and Temperate Climes.....	30
No. P 8. Domestic Animals.....	15

#### *Economic Subjects*

No. P 9. The Cotton Industry.....	25
No. P10. The Iron and Steel Industry.....	35
No. P11. Wheat, Corn and Oats.....	25

No. P12.	Lumbering . . . . .	25
No. P13.	The Silk Industry . . . . .	19
No. P14.	Copper Mining . . . . .	13

### *Membership*

Membership in the Academy is open to "any person residing in Chicago or vicinity who is in sympathy with the objects of the Academy." The Active Members constitute the governing body in the Academy and pay annual dues of Five Dollars each. Associate Members have all the privileges of Active Members except those of voting and holding office. Their dues are Three Dollars a year. A copy of each of the publications issued by the Academy is sent to all paid-up members. Special lecture tickets are also issued to members.

Application blanks may be secured from the Secretary, who will be pleased to confer with any who may become so interested in the work of the Academy that they would like to become more directly associated with it.

WALLACE W. ATWOOD,  
*Secretary of the Academy,*  
*Lincoln Park, Chicago.*